

IN THE CLAIMS:

1. (currently amended) A peritoneal dialyzer comprising: a catheter capable of injecting and discharging peritoneal dialysate in an abdominal cavity of a patient; a peritoneal dialysate circuit external of the patient connected to the catheter; and a dialyzer provided in the peritoneal dialysate circuit, said dialyzer comprising a hemodialysate circuit connected so that peritoneal dialysate passing through the inside contacts hemodialysate via a hollow fiber membrane,

~~characterized in that~~ wherein a means capable of measuring an osmotic agent concentration in peritoneal dialysate is provided in the peritoneal dialysate circuit on the side of the end at which the catheter is connected with respect to the dialyzer, and a mechanism for dehydrating the peritoneal dialysate according to the osmotic agent concentration measured by said means is provided in the hemodialysate circuit, and ~~in that~~ the peritoneal dialysate in the peritoneal dialysate circuit contacts the hemodialysate in the hemodialysate circuit via the membrane of said dialyzer and water in the peritoneal dialysate is removed to the hemodialysate via said dialyzer by said dehydrating mechanism, said dehydrating mechanism being one selected from the group consisting of:

(1) a pump provided in a hemodialysate inflow channel to the dialyzer and a pump provided in a hemodialysate outflow channel from the dialyzer, the pumps being driven so that a flux in the pump on the outflow channel side is larger than a flux in the pump on the inflow channel side;

(2) a pump which can equalize the flux of hemodialysate inflowing into the dialyzer and the flux of hemodialysate outflowing from the dialyzer arranged in the hemodialysate circuit; a branch channel provided on a hemodialysate outflow channel at a position closer to the dialyzer than said pump; and a dehydrating pump provided in the branch channel and driven so that the amount of hemodialysate outflowing from the dialyzer becomes larger than the amount of hemodialysate inflowing into the dialyzer; and

(3) a viscous pump which varies the capacities of a chamber on the side of the hemodialysate inflow channel and a chamber on the side of the hemodialysate outflow channel according to the movement of a diaphragm provided in the hemodialysate circuit, with dehydration being performed by varying the capacities so that the capacity of the chamber on the side of the inflow channel is smaller than the capacity of the chamber on the side of the outflow channel and the amount of hemodialysate outflowing from the

dialyzer is larger than the amount of hemodialysate inflowing into the dialyzer.

2. (original) A peritoneal dialyzer according to Claim 1, characterized in that said means capable of measuring said osmotic agent concentration is at least one type of means selected from the group consisting of an ultrasonic wave measuring apparatus, a refractive index measuring instrument, a light absorption instrument, and a conductive rate measuring instrument.

3. (canceled)

4. (canceled)

5. (previously presented) A peritoneal dialyzer according to Claim 1, characterized in that osmotic agent cannot pass through a hollow fiber membrane in the dialyzer.

6. (previously presented) A peritoneal dialyzer according to Claim 1, characterized in that said osmotic agent is at least one type of compound selected from the group consisting of albumin, glucose polymer and dextran.

7. (currently amended) A method of peritoneal dialysis using a peritoneal dialyzer comprising a catheter capable of injecting and discharging peritoneal dialysate into/from an abdominal cavity of a patient, a peritoneal dialysate circuit external of the patient connected to the catheter, and a dialyzer provided in the peritoneal dialysate circuit, said dialyzer including a hemodialysate circuit connected so that peritoneal dialysate passing through the inside can come into contact with hemodialysate via a hollow fiber membrane, and which includes

(a) taking peritoneal dialysate out from a patient and measuring an osmotic agent concentration (c1) in the peritoneal dialysate;

(b) calculating an amount of dehydration (uf1) of the peritoneal dialysate required for adjusting the osmotic agent concentration (c1) in the peritoneal dialysate to a predetermined osmotic agent concentration (c2),

(c) removing water corresponding to the calculated amount of dehydration (uf1) in the peritoneal dialysate via said dialyzer by a dehydrating mechanism in which the peritoneal dialysate in the peritoneal dialysate circuit contacts the hemodialysate in the hemodialysate circuit via the membrane of said dialyzer and water

in the peritoneal dialysate is removed to the hemodialysate via said dialyzer; and

(d) injecting the peritoneal dialysate into the patient again;
wherein said dehydrating mechanism is one in which an amount of hemodialysate outflowing from the dialyzer is made to be larger than an amount of hemodialysate inflowing into the dialyzer.

8. (original) A method of peritoneal dialysis according to Claim 7, characterized in that measurement of the osmotic agent concentration in said peritoneal dialysate is performed by at least one type of means selected from the group consisting of an ultrasonic wave measuring apparatus, a refractive index measuring instrument, a light absorption instrument, and a conductive rate measuring instrument, provided in the peritoneal dialysate circuit on the side of the end at which the catheter is connected with respect to the dialyzer.

9. (currently amended) A method of peritoneal dialysis according to Claim 7, characterized in that ~~dehydration of said peritoneal dialysate is performed by a mechanism for dehydrating~~
the amount of hemodialysate outflowing from the dialyzer is made to

be larger than an amount of hemodialysate inflowing into the dialyzer by a pump provided on the hemodialysate circuit.

10. (currently amended) A peritoneal dialyzer ~~according to~~ according to Claim 7, characterized in that said osmotic agent cannot pass through the hollow fiber membrane in the dialyzer.

11. (previously presented) A peritoneal dialyzer according to Claim 7, characterized in that said osmotic agent is at least one type of compound selected from the group consisting of albumin, glucose polymer and dextran.